

would precipitate one into the jaws of a horrible death. In how many others of the busy workshops of the land is the same state of things tolerated? By far too many. The operatives should insist on having these pitfalls, and mantraps, properly guarded, before some unwary individual is snatched away forever. It also behooves every one to be extremely careful, when in the neighborhood of powerful machines, so that they may not be injured beyond recovery by momentary heedlessness.

PRESERVATION OF FRUITS.

We have recently received several letters from correspondents requesting information relating to the preservation of fruits. One correspondent says:—"The directions which accompany self-sealing jars are usually very ambiguous and laconic. For instance, one says, 'use syrup,' but does not state the amount of sugar. Others give the quantity of sugar but not the water. If the reasons for the several steps were given, it would aid me in performing them and prevent failures."

In the preservation of fruit the great objects to be secured are the exclusion of air and the prevention of fermentation. Sugar is the chief agent employed as a syrup to exclude the air from the fruit, and it is a powerful antiseptic.

Peaches, plums, and such like fruit, may be preserved as follows:—Sound fruit is first placed in a glass or glazed stoneware vessel, then boiling-hot syrup, composed of one pound of white sugar to one pint of water, poured in slowly until it covers the fruit. Air bubbles will rise for a few seconds afterwards; when these cease, the cover, which should be air-tight, is then put on, and the jar put away in a cool, airy situation. Any number of jars containing fruit may thus be operated upon at the same time. The covers of these may be rendered air-tight by the use of India-rubber under the flange, or pieces of cloth coated with wax. Of course the syrup should reach to the lip nearly, so as to avoid an air-space near the top.

As sugar is very high in price at present, the making of preserves, such as jellies, is very expensive. A more economical and superior method of preserving fruit, whereby its original flavor is secured, has been communicated to us by a friend, who has practiced it successfully for several years, and whose family has entirely ceased to make old-fashioned preserves:—First obtain a requisite number of common wide-necked bottles, then take the peaches or other fruit to be preserved, peel them, take out the stones or seed, and slice them as for eating at the tea-table. The bottles are now filled with this sliced fruit, and about an ounce of white sugar placed on the top in each. The bottles are then placed in a kettle containing water and held vertical with a frame of slats, then submitted to boiling for about twenty minutes. Each is then lifted, and a cork at once driven into its neck. After this the corks are covered with a composition of equal parts of hot rosin and sealing-wax, to render the bottles air-tight. Fruit thus put up will keep in a cool dry pantry for a year, and retains all its original flavor. Peaches, apples, pears, cherries, blackberries, plums, grapes, &c., have been preserved by this simple and economical system.

A common method of preserving green corn to make succotash during winter, is to boil it slightly in the ear, then remove the kernels from the cobs with a sharp knife, dry them slowly, and pack in air-tight cans. Green corn, Lima beans, peas, &c., may be preserved by drying them slowly, at a low heat, until all their moisture has evaporated, after which they are to be packed in stoneware or glass jars, and put away in a dry pantry. The best method of conducting the operations is to place the corn, or beans, in shallow plates, and arrange them around a stove, or in a moderately warm oven, until they are thoroughly dried. When required for use, they should be steeped in warm water for about an hour before they are cooked. Beans and corn are very difficult to preserve in a moist condition in air-tight jars.

By a singular error of the printers on one of the city papers, the gunboat *Hartford* is described as a steamer of 28 tuns and 1990 guns; and the *Tennessee* as one of 4 tuns and 1275 guns, and so on through a long list.

ALUMINUM BRONZE.

A very interesting article on this subject, in *Newton's London Journal of Arts*, contains information which we here condense, knowing that it will be useful to many of our readers:—Mixed with small quantities of the common metals, an alloy of aluminum is brittle as glass. But a few years since Dr. Percy made an alloy with aluminum and copper, which possesses great beauty and remarkable tenacity. It is composed of copper, with about 10 per cent of aluminum. It is an essential condition to its successful production, that copper of great purity be employed in its manufacture, and the best for this purpose is the kind which is deposited by galvanic action; the next best is obtained from Lake Superior. The melting of the alloy is a matter of much importance. By the first melting, when the two metals are fused together, the product appears to be an intimate mechanical, rather than a chemical combination of the metals, and it is very brittle. But by repeated melting a chemical compound appears to be produced, which is free from brittleness and about as hard as iron. This alloy is tenacious, malleable, rigid, light, and of a beautiful golden color.

It is well adapted for articles of ornament, on account of its capability to receive impressions from dies, and of being chased like gold; while it is insusceptible, in a great degree, to the action of sulphur and oxygen. It affords an artist the means of imitating the effect of gold, as in chased work; it presents a richness of effect similar to gold, and in polished work it is almost as brilliant.

With respect to its adaptability for mechanical application, in tenacity and rigidity it will compare favorably with many other alloys. In experiments made with it by Mr. Anderson, at the Royal Gun Factory, Woolwich, England, it exceeded the best gun metal in tensile strength in the ratio of 2 to 1. It sustained a strain of 73,183 pounds on the square inch; gun metal (copper and tin compound), 35,040 pounds, and the best steel, 72,000 pounds. In resisting compression it has a crushing force of 132,000 pounds; thus exceeding cast-iron, the resistance of which is about 120,000 pounds. In transverse strength or rigidity, it exceeded gun metal in the ratio of 3 to 1, and brass in the ratio of 44 to 1. It is easily melted, and flows freely; hence it is a good founding metal for castings, and it can be turned in a lathe, or filed, as easily as bronze. It can also be rolled into sheets; but it does not solder well, which is an objection to its use for many purposes. The weight of the bronze is about the same as wrought-iron, which it surpasses in strength. For philosophic apparatus, it is a valuable alloy, on account of its beauty, strength, and freedom from oxidation. At present the price is about \$1 45 per pound, which is too high for its employment except in ornamental work, fine instruments, and apparatus. We hope that improvements in the manufacture of aluminum may lead to a reduction in the cost, so that this alloy may soon be obtainable by mechanics for use in place of bronze and brass.

Mutilated Treasury Notes.

No little complaint has been made because of the refusal of the Post-office to receive the worn and mutilated treasury notes and postal currency. The Government should provide that the collectors and postmasters receive this paper, and exchange dirty and mutilated notes, upon the same principles and with the same liberality that well-conducted banks treat their mutilated notes. The mutilated notes so taken by collectors and postmasters, should be embraced in their returns to the Government, and then destroyed. At present the only mode of exchanging this currency is as follows:—

"Mutilated notes and fragments will be redeemed only at the treasury of the United States at Washington, whither they can be sent, addressed to the treasurer of the United States, by mail, free of postage. A draft on the assistant treasurer, at New York, for the amount allowed, will be returned, in the same way, to the address of the person remitting the same. Mutilated fractional notes presented for redemption must be in sums of not less than three dollars of the full face value.—*Legal and Insurance Reporter.*

RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week. The claims may be found in the official list:—

Revolving Fire-arm.—This invention consists in so combining two barrels with one rotating, many-chambered, revolving cylinder, in a fire-arm, as to provide for the discharging of two of the chambers of the cylinder, one through each barrel, without rotating the cylinder between the discharges. It also consists in so combining two hammers with each other and with the many-chambered cylinder of a fire-arm in which two barrels are combined with such cylinder as above-mentioned, that one of the hammers may be cocked separately for firing from one chamber or both may be cocked together for firing from two chambers, and that when one hammer only is cocked the cylinder may be caused to rotate only a distance corresponding with the distance between the center of one chamber and the center of the next one; but that when the two hammers are cocked together the cylinder may be caused by the cocking movement to rotate twice the aforesaid distance. And it further consists in certain means by which the combination of the two hammers with the trigger and with the device for effecting the rotary movement of the cylinder to operate, as above described, is effected. H. D. Ward, of Pittsfield, Mass., is the inventor of this improvement.

Fire-arms.—The principal object of this invention is to provide for loading the chambers of the cylinders of revolving fire-arms in front with metallic cartridges of the common form and construction, that is to say containing a fulminating priming in a hollow flange, projecting circumferentially from the rear portion of the shell; and to this end it consists in providing the chambers with lining, thimbles, or tubes, of a proper internal caliber to receive the cylindrical portions of the cartridges, and of an external circumference equal to that of the flanges of the cartridges; the chambers being bored sufficiently large for the reception of the said tubes, and being partially closed or provided with suitable stops in the rear to prevent the cartridges from slipping through. Another object of this invention is to provide for loading with loose powder and ball when the metallic cartridges have given out, or cannot be obtained, and to this end it consists in fitting the rear ends of the said thimbles on tubes with nipples which can be inserted and removed at pleasure. The invention is also applicable to breech-loading fire-arms, so called, which receive their charges in front of the chamber. The above improvement is due to John H. Vickers (assignor to himself and Lucius W. Pond) of Worcester, Mass.

Harbor Defense.—This invention consists in the employment as a harbor defense of one or more vessels provided with ports, through which they may be filled with water for sinking them across the mouth or channel of the harbor, and with pipes through which the water may be pumped out when it is desired to raise and remove them, and having erected upon them parapets or other superstructures which may project above the water when the vessels are sunk, and serve, in addition to the hulls or bodies of the vessels themselves, as obstructions to an enemy's vessels, and also serve for the mounting of guns or as places for sharpshooters. It also consists in the employment in combination with such vessels and superstructures of a series of floats arranged between, them and screwed thereto by chains or cables for the purpose of serving in part as obstructions to the enemy's vessels, and obviating the necessity for the use of as many sunken vessels as would otherwise be required; but being capable of easy removal, when no enemy is near, for the entrance and exit of those vessels, the arrival and departure of which it is desired to permit. R. H. Jewett, whose post-office address is Ripley, Brown Co., Ill., is the inventor of this harbor defense.

Hat.—This invention consists in a hat having the body and brim composed of linen, cotton, silk, woolen, or other cloth or woven material, without any stiffening or frame with the exception of one or more steel hoops or springs, which are inserted into hems or tucks formed in the brim for their reception by sewing or other means for the purpose of keeping th.

brim in shape, and yet preserving its flexibility; such a hat being light, cheap and capable of being folded up in such manner that it may be carried in an ordinary pocket without inconvenience. W. H. Mallory, of Watertown, Conn., is the inventor of this improvement.

Submarine Gun.—The object of this invention is to construct a gun which is placed in the bow or any other part of the vessel, below the water-line, and which is so constructed that the same on touching a hostile vessel discharges its contents and pierces said hostile vessel below the water-line, and below those parts usually protected by iron armor. The invention consists in the arrangement of a gun projecting from the bow or any other part of a vessel, below the water-line, in combination with a hammer and trigger or their equivalent in such a manner that when the muzzle of the gun comes in contact with a hostile vessel its charge is exploded and said hostile vessel pierced below the water-line, and below those parts which generally are protected by iron armor. The invention consists further in the arrangement of a screw cap and packing rings, in combination with the muzzle of the gun in such a manner that the water is effectually excluded from the barrel of the gun, and at the same time the egress of the ball or shell from the muzzle is not materially impeded. The invention consists further in the arrangement of a hinged and of a rising and falling sliding valve in combination with the stuffing box, through which the gun passes in such a manner that when the gun recoils on being discharged said valves drop down immediately in front of the gun, and prevents the water following after the gun into the interior of the vessel. The invention consists finally in the employment for the purpose of introducing the charge, of a tube fitting into the breech end of the bore of the gun, and provided with a plunger acted upon by a saw, and provided with a stop to arrest it in the proper position in combination with a rising and falling wedge or check block in such a manner that the charge can be forced in from behind and deposited at the proper spot of the barrel, and the barrel can be firmly closed by the check block ready for firing. Joseph Duffy, of Paterson, N. J., is the inventor of this improvement.

Evaporating Kettle.—The object of this invention is the economical use of coal as fuel for heating a long train or block of kettles, such as is employed in the manufacture of salt, and the uniform heating of all the kettles in the block train. The fuel now commonly used in this country for the evaporation of brine in kettles is wood, the fire being under the first one or two kettles in a block, and the others being heated by the flame and gaseous products of combustion; and as a block sometimes consists of as many as a hundred kettles arranged in pairs, while the heat under the first two or three pairs is so intense as to burn the salt on the bottoms; that under the last is so low that a fortnight is required to complete the evaporation, though it is completed in a few hours in the first pair. Owing to the high price of wood, attempts have been made to use coal for heating the kettles, but have not succeeded. To enable coal to be used it has been proposed to substitute long pans for kettles, but the first cost of substituting such pans for kettles has prevented its adoption. This invention consists in a certain novel system or arrangement of grated fire places, bridges, partitions and flues or passages for the economical use of coal under kettles, an important advantage of which is that it can be applied at comparatively small expense to blocks of kettles which have been already put up and used with wood as fuel. W. S. Worthington, of Newtown, N. Y., is the inventor of this improvement.

Tobacco Pipe.—The object of this invention is to preserve the tobacco in the bowl perfectly dry, and to prevent the moisture, which may pass through the stem, from coming in contact with the tobacco, so that the same burns just as well and tastes equally sweet at the bottom of the bowl as on the top. This object is attained by a very simple and ingenious arrangement of a cavity on the side of, or under, the smoke passage leading from the bowl to the tube or stem, in such a manner that the spittle or moisture, running down through the tube, will collect in said cavity, and not be allowed to find its way into the smoke passage or bowl, and thereby prevented from

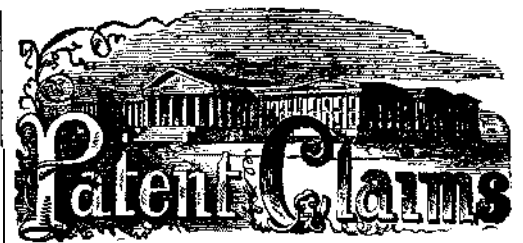
being drawn back into the mouth. Henry Kurth, of East New York, L. I., is the inventor of this improvement.

Grinding Mills.—It is well known to every one who has experience in milling, that a run of stones requires the almost constant attention of the miller to prevent them from grinding either too fine or too coarse. The reason of this variation in the grinding lies in the fact that, the spindle being heavily laden, and at times moving with considerable velocity, becomes heated by the friction of the followers (which are necessarily set snugly against the spindle to keep it from trembling) and expands and throws the runner a greater distance from the bed stone, and consequently, they don't grind as fine as before. Then, again, if the supply of grain is stopped for awhile, the labor of the spindle being reduced, the tendency of it is to cool and contract; and, consequently, to bring the stones nearer together, so that when the grain is again supplied to them they will grind too fine. To compensate for this variation no provision is made except that of adjusting the runner higher or lower, by hand, according as the stones are grinding too fine or too coarse. This adjustment can only be made by the miller, because only a practised eye and touch can discover the variation in the grinding and know just how much adjustment is required to correct it. The object of this invention is to prevent this variation in the grinding consequent upon the expansion and contraction of the spindle from the cause above-mentioned, and to this end it consists in having a number of longitudinal openings or apertures provided in the upper bearing of the spindle in combination with a fan which is secured to the spindle, and revolves within a suitable case below the bed stone, whereby a current of air is forced through the longitudinal apertures of the bearing of the spindle, and thereby both bearing and spindle are prevented from heating, and consequently from expanding, so that when the mill is once set to grind to a certain degree of fineness or coarseness, it will so continue to grind without any perceptible variation, so long as the grinding surfaces of the stones are in good working condition. The invention also consists in a facile mode of setting the followers up to and around the spindle. Cornelius Bollinger, of Harrisburgh, Pa., is the inventor of this improvement.

Sawing Machine.—This invention relates to a new and improved machine for sawing direct from the log, strips for the manufacture of hoe, fork and broom handles, and other similar articles. The invention consists in the employment or use of a vertical and a horizontal saw in connection with a feed carriage in which the log is suspended, the carriage being arranged in a novel way, and the log suspended within it in such a manner that it may be adjusted relatively with the saws, so that the latter may act properly on the log to effect the desired end.

Clothes-washing and Wringing Machine.—This invention consists in the employment of a suds-box provided with rounded ends, and having its bottom and ends covered by a series of rollers; the above parts being used in connection with a rubber which is also provided with rounded ends and rollers and a perforated top, all arranged in such a manner as to operate very efficiently. The invention further consists in the application to the suds-box of a wringer, arranged in such a manner as to be capable of being operated by a treadle, in order to subject the clothes to the requisite degree of pressure. Isaac W. Bowers, of Ovid Center, Mich., is the inventor of the above two patents, which bear date Aug. 25, 1863.

LENGTHENING THE CANAL LOCKS.—The engineers on the Erie Canal are making a survey for the proposed extension of the locks. The surveys and estimates are for locks two hundred and twenty-five feet long between the gates, and wide enough to pass boats twenty-six feet wide—the estimate to be presented to the legislature on the first day of its next session. It is supposed that locks of these dimensions will enable boats of five hundred tons burden to navigate the canals, and also pass iron-clad gunboats into the lakes if required. Some idea of the size of these new structures may be obtained when it is remembered that the present locks are only one hundred and ten feet long between the gates, and seventeen feet four inches in the bottom.



ISSUED FROM THE UNITED STATES PATENT-OFFICE FOR THE WEEK ENDING SEPTEMBER 8, 1863.

Reported Officially for the Scientific American.

. Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

39,787.—Mode of Removing Obstacles under Water.—Thomas K. Anderson, Hornellsville, N. Y. Ante-dated Oct. 26, 1862:

I claim the application of a cannon or mortar, constructed in such a manner that it may be suspended, and the muzzle brought to bear upon an object, at any angle, or in any position, under water, in the manner described and for the purpose herein specified.

39,788.—Construction of War Vessels.—Peter Andrew, Cincinnati, Ohio:

I claim, first, Constructing the gun deck of oblique plank in combination with the gun battery to be used thereon substantially as and for the purpose set forth.

Second, I claim constructing portholes with projecting sides substantially as and for the purpose described.

Third, I also claim the combination of beam, c, with the deck plank, when the same are locked together and braced substantially in the manner and for the purpose set forth herein.

Fourth, I claim the lock pieces, g, g, in combination with the rampart, or the back of the vessel, substantially in the manner and for the purpose set forth.

39,789.—Self-cleaning Chuck.—Jno. W. Bartlett, of Har-mar and A. Morris, of Marietta, Ohio:

We claim the fans, D D D, openings, c c c, or their equivalent in combination with the chuck, a, in the manner and for the purposes set forth.

39,790.—Scroll Saw.—Abram Beekman, New York City:

I claim the oscillating beam or frame, C, in combination with the rockers, D G, saw, J, attached thereto, as shown, and the bars, E H, the latter being connected to the rockers and to the fixtures, F I, and all arranged substantially as and for the purpose herein set forth.

39,791.—Car Spring.—J. D. Billings and F. L. Tyler Rutland, Vt.:

We claim the torsion springs, C, in connection with the arms or levers, D, and block, E, arranged to operate in the manner as and for the purpose herein set forth.

39,792.—Mode of Cleaning Chimneys.—C. D. Blinn, Port Huron, Mich.:

I claim a cleaner for lamp-chimneys composed of two rods, A A, connected by a fulcrum pin, a, and provided at one end with cotton or woolen twist or other fibrous material substantially as set forth.

[This invention consists in the employment or use of two bars or rods connected by a fulcrum pin, and having a suitable fibrous material attached to one end, the parts being so arranged as to form a very convenient and efficient device for the purpose of cleaning lamp chimneys.]

39,793.—Grinding Mill.—Cornelius Bollinger, Harrisburgh, Pa.:

I claim, first, The fan, E, attached to the spindle, D, and revolving within the casing, F, in combination with the longitudinal apertures, e, in the upper bearings, f, of the spindle, when the former is used to force a current or currents of air through the apertures, e, of the bearing, in the manner and for the purpose substantially as described.

Second, The keys, c, terminating at the bottom in rounded screw threaded shanks, d, having nuts, g, fitted upon them, in combination with the lugs, b, and followers, c, when arranged to operate in the manner specified.

39,794.—Temperature Alarm.—Robert Boyle, Detroit, Mich. Ante-dated Aug. 19, 1863:

I claim the combination of the gate, G, graduated arc, E, and electric alarm, H, with the index, D, float, C, and mercury tube, B, in the manner herein shown and described.

[This invention consists in the arrangement of an oscillating index operated upon by a float projecting from a tube partially filled with mercury or other suitable liquid, and operating between a gate or two stops that are adjustable upon a graduated arc, in combination with an electro-magnetic hammer operating upon a suitable alarm bell in such a manner that when the temperature in the room or space where the apparatus is put up, rises above or sinks below a certain point, the oscillating index by the expansion or contraction of its mercury in the tube and consequent rising or falling of the float, is brought in contact with either of the stops on the graduated arc, and thereby the circuit of the electro-magnetic alarm is closed, and the hammer is caused to sound the alarm bell.]

39,795.—Faucet.—John Broughton, Chicago, Ill.:

I claim the arrangement of the cylindrical barrel, F, working in the interior of the shell, G, in combination with elastic washers, b, c, screw cap, D, and handle, G, or its equivalent, all constructed and operating in the manner and for the purpose substantially as herein shown and described.

[This invention relates to certain improvements in the manufacture of cocks, faucets, &c., whereby all the parts can be readily finished on the turning lathe, no grinding of the plug or any other part is required, and an article is produced which is not liable to wear perceptibly, and which will remain tight for any length of time.]

39,796.—Door Bell.—N. F. Cone, La Crosse, Wis.:

I claim, first, The frog, G, in combination with the arms of the hammers, D D', and with the cam, E, constructed and operating in the manner and for the purpose substantially as herein shown and described.

Second, The ribs, h h', in combination with the springs, d d', and arms, b b', of the hammers, D D', constructed and operating in the manner and for the purpose set forth.

[This invention relates to an improvement of that class of door bells in which a striking mechanism is brought in such relation to a stationary bell, that by rotating a crank or knob in either direction a hammer will be actuated and the bell struck.]

39,797.—Mode of Keeping Sweet Potatoes.—William and James Davis, Richland, Iowa:

We claim packing or filling the interstices between and around the potatoes with caliche or burnt sand, and excluding air or moisture from the potatoes by the means and in the manner above substantially described.